

AMENDMENTS TO THE CLAIMS:

29. (Currently Amended) A process for the hydrometallurgical processing of manganese containing materials, the process characterised by the combination of a manganese dioxide containing feedstock and an acidic solution to form an acidic a ~~leach solution to be leached~~, and passing a volume of sulphur dioxide gas through that leach solution as the leaching agent, whereby the levels of dithionite ion generated in the leach solution are less than about 5g/l.

30. (Currently Amended) A process according to claim 429, wherein the levels of dithionite ion generated in the leach solution are less than about 1g/l.

31. (Currently Amended) A process according to claim 429, wherein the pH of the leach solution is maintained at less than about 1.5.

32. (Currently Amended) A process according to claim 429, wherein the leach solution comprises a slurry of manganese dioxide containing material at a slurry density of less than about 10%w/v, less than about 120g/l manganese sulphate, a temperature of greater than about 95°C, and at a pH of less than about 1.5.

33. (Currently Amended) A process according to claim 429, wherein the

manganese dioxide containing feedstock contains less than about 40% manganese.

34. (Currently Amended) A process according to claim 429, wherein the leach solution has an initial soluble iron concentration of greater than 4g/l.

35. (Currently Amended) A process according to claim 634, wherein the iron is in the form of ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$).

36. (Currently Amended) A process according to claim 429, wherein the ferrous concentration is maintained at a level below about 0.5g/l by providing an excess or residual amount of manganese dioxide in the slurry.

37. (Currently Amended) A process according to claim 429, wherein the ratio of ferric to ferrous is monitored at least at intervals throughout the leach to ensure an oxidation reduction potential (ORP) of 550mV, or above (vs Ag/AgCl reference electrode).

38. (Currently Amended) A process according to claim 429, wherein the sulphur dioxide gas is preferably passed through the leach solution over a period of at least 10 hours whereby up to about 95% of manganese dioxide is dissolved.

39. (Currently Amended) A process according to claim 429, wherein the leach is conducted over a period of between about 10 to 15 hours.

40. (Currently Amended) A process according to claim 429, wherein once a stoichiometric amount of sulphur dioxide has been added to the leach solution to achieve a 95% dissolution of the manganese dioxide present, the reaction is halted.

41. (Currently Amended) A process for the production of electrolytic manganese dioxide, the process characterised by a leach of a manganese dioxide containing feedstock ~~in acidic solution, through~~ ~~in~~ which a volume of sulphur dioxide gas as the leaching agent is passed through an acidic solution containing manganese dioxide, and in which the dithionite ion levels are in said solution being maintained at less than about 5g/l, the resulting leach solution being processed to provide an appropriate electrolyte that is passed to an electrowinning stage during which electrolytic manganese dioxide is deposited.

42. (Currently Amended) A process according to claim 4341, wherein the levels of dithionite ion generated in the leach solution are less than about 1g/l.

43. (Currently Amended) A process according to claim 4341, wherein the pH of the leach solution is maintained at less than about 1.5.

44. (Currently Amended) A process according to claim 4341, wherein the leach solution comprises a slurry of manganese dioxide containing material at a slurry density of less than about 10%w/v, less than about 120g/l manganese sulphate, a temperature of greater than about 95°C, and at a pH of less than about 1.5.

45. (Currently Amended) A process according to claim 4341, wherein the manganese dioxide containing feedstock contains less than 40% manganese.

46. (Currently Amended) A process according to claim 4341, wherein the leach solution has an initial soluble iron concentration of greater than 4g/l.

47. (Currently Amended) A process according to claim 4846, wherein the iron is in the form of ferric sulphate ($Fe_2(SO_4)_3$).

48. (Currently Amended) A process according to claim 4341, wherein the ferrous concentration is maintained at a level below about 0.5g/l by providing an excess or residual amount of manganese dioxide in the slurry.

49. (Currently Amended) A process according to claim 4341, wherein the ratio of ferric to ferrous is monitored throughout the leach to ensure an oxidation reduction potential (ORP) of 550mV, or above (vs Ag/AgCl reference electrode).

50. (Currently Amended) A process according to claim 4341, wherein the sulphur dioxide gas is passed through the leach solution over a period of at least 10 hours whereby up to about 95% of manganese dioxide is dissolved.

51. (Currently Amended) A process according to claim 4341, wherein the leach is conducted over a period of between about 10 to 15 hours.

52. (Currently Amended) A process according to claim 4341, wherein once a stoichiometric amount of sulphur dioxide has been added to the leach solution to achieve a 95% dissolution of the manganese dioxide present, the reaction is halted.

53. (Currently Amended) A process according to claim 4341, wherein the acidic solution used in the leach is at least in part comprised of return or spent sulphuric acid solution from the electrowinning stage.

54. (Currently Amended) A process according to claim 4341, wherein additional acid is added to the leach to ensure the pH remains less than about 1.5.